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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,041	06/23/2003	Yasuhiro Chono	199372005100	9511

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EXAMINER
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LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/602,041	<b>Applicant(s)</b> CHONO ET AL.	
	<b>Examiner</b> Jeffrie R. Lund	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 11-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's election without traverse of Group I, claims 1-10 in the reply filed on March 4, 2005 is acknowledged.

#### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 2003/0170949 ('949). Although the conflicting claims are not identical, they are not patentably distinct from each other because Application '949 teaches the claimed invention, and differs from the present invention only in minor and

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obvious ways.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, and 7-10 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Chouno et al, US Patent Application Publication 2003/0170949 A1.

Chouno et al teaches the claimed processing apparatus in figures 3, 5, 14, 15, and 16 and throughout the specification.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Applicant cannot rely upon the foreign priority papers to overcome this rejection

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because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15

7. Claims 1-4, and 10 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Tabata et al, US Patent Application Publication 2003/0133854 A1.

Tabata et al teaches the claimed processing apparatus in figures 2, 3, and 9-12 throughout the specification.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al, US Patent 5,281,295, in view of Frankel et al, US Patent 6,019,848.

Maeda et al teaches an ozone processing apparatus that includes: an ozone generator 10 for generating ozone from an oxygen containing gas; a plurality of processing chamber 27a-27e for processing a substrate with the ozone containing gas; a plurality of ozone-containing gas supply lines 19a-19e connecting the ozone generator and the processing chamber; a flow regulator 16a adapted to regulate the flow rate of the oxygen-containing gas supplied to the ozone generator; a plurality of variable

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throttles 24a-24e; a plurality of flow measuring devices 25a-25e; and a plurality of processing fluid discharge lines. (Figures 1, 2a, 2b)

Maeda et al differs from the present invention in that Maeda et al does not teach a controller that determines the ozone-containing gas demand and controls the flow regulator to supply the required amount of ozone-containing gas to the chambers, a second ozone generator, flow control devices in the processing fluid discharge line, or using nitrogen gas controlled with a flow regulating device as a supplemental gas.

Frankel et al teaches a controller 50 that controls all aspects of the process including the determining the demand for the ozone-containing gas and controlling the oxygen-containing gas flow regulator and power supplied to the ozone generator to supply the desired amount of ozone containing-gas (Figures 1A, 1C, 1D, and column 15 line 28 through column 24 line 9, specifically, column 18 line 40 through column 19 column 25); a flow control device 63 for controlling the flow rate of the discharged processing fluid; and using nitrogen gas controlled with a flow regulating device 100 as a supplemental gas.

The motivation for adding the controller of Frankel et al to the apparatus of Maeda et al is to provide a means for controlling the apparatus to ensure the proper amounts of processing gases (ozone) is produced for use in the processing chambers, and to automate the system. The motivation for adding discharge flow control device of Frankel et al to the discharge pipes of Maeda et al is to control the flow of the discharged gases, as required but not disclosed by Maeda et al. The motivation for using nitrogen as a supplemental gas is to dilute the oxygen to a desired concentration.

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The motivation for duplicating the ozone generator of Maeda et al is to increase the amount of the ozone-containing gas that can be produced per unit of time to meet the required process requirements. Furthermore, it has been held that the duplication of parts is obvious (see *In re Harza* 124 USPQ 378).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the controller and discharge flow control device to the apparatus of Maeda et al, use nitrogen as a carrier gas, and duplicate the ozone generator of Maeda et al.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al and Frankel et al as applied to claims 1-4, 9 and 10 above, and further in view of Harada et al, US Patent 5,632,868.

Maeda et al and Frankel et al differ from the present invention in that they do not teach using carbon dioxide gas controlled with a flow regulating device as a supplemental gas.

Harada et al teaches using carbon dioxide 2 controlled with a flow regulating device 6 as a supplemental gas and mixed with oxygen to form ozone, and a controller that regulates the power supplied to the ozone generator.

The motivation for using carbon dioxide controlled with a flow regulating device as a supplemental gas, in the apparatus as Maeda et al and Frankel et al, is to control the formation of NO<sub>x</sub>, and to provide an alternate supplemental gas as taught by Harada et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time

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the invention was made to use carbon dioxide controlled with a flow regulating device as a supplemental gas in the apparatus of Maeda et al and Frankel et al as taught by Harada et al.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al, Frankel et al, and Harada et al as applied to claims 1-5, 9 and 10 above, and further in view of Harvey et al, US Patent 5,904,170.

Maeda et al, Frankel et al, and Harada et al differ from the present invention in that they do not teach an ozone concentration measuring device that measures the ozone concentration.

Harvey et al teaches an ozone concentration measuring device 60 that measures the ozone concentration and feeds the concentration to controller that controls the ozone generator. (Figure 4, column 3 line 39 through column 4 line 2)

The motivation for adding an ozone concentration measuring device to the apparatus of Maeda et al, Frankel et al, and Harada et al is to measure the ozone concentration and actively control the concentration through a control feed back loop as taught by Harvey et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the ozone concentration measuring device of Harvey et al to the apparatus of Maeda et al, Frankel et al, and Harada et al.

12. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al, and Frankel et al as applied to claims 1-4, 9 and 10 above, and further in view of Toshima et al, US Patent 6,869,499 B1.



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Maeda et al, and Frankel et al differ from the present invention in that they do not teach a steam source.

Toshima et al teaches an ozone and steam processing system that supplies ozone and steam to a processing chamber. (Entire document)

The motivation for adding the steam source to the apparatus of Maeda et al and Frankel et al is to enable the apparatus of Maeda et al and Frankel et al to process the substrates using steam as taught by Toshima et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the steam source of Toshima et al to the apparatus of Maeda et al and Frankel et al.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund  
Primary Examiner  
Art Unit 1763

JRL

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